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ABSTRACT

The purpose of this study was to find teacher behaviors which correlate significantly with a criterion measure of teacher ability to relate to students. Videotapes of 50 teacher interns were shown to 100 high school students of three different ethnic backgrounds--white, black and oriental. Teachers were rated on ability to relate to students. Subsequent interaction analysis of the videotapes identified 51 potential teacher behavior correlates, 15 of which were found to correlate significantly with teacher ability to relate to students. In general students tended to rate higher those teachers who 1) lecture in response to student talk, 2) allow students freedom to initiate discussion, and 3) use praise extensively in rewarding students. Students tended to rate less favorably those teachers who 1) permit silence in the classroom to continue for prolonged periods of time, 2) give directions for extended periods of time, 3) prolong an activity, and 4) ask questions for prolonged periods of time. No significant differences were found among mean teacher relatability scores by main effects of race and sex of student raters. (Author/RT)

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Indicators of Teacher Ability to Relate to Students

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What interactions in the classroom affect a teacher's ability to relate to students? Is it possible to determine the pedagogical or human characteristics of a teacher which identify him as one who can relate to students?

The ability of a teacher to relate to students is a concept not clearly defined. Only recently has teacher relatability become an issue with disgruntled high school students. In general, decisions that affect education are made by adults. More and more, students are asking for a voice in the decisions that affect a substantial segment of their lives.

Students today are on the march. Responding to a decade of practice in self-inquiry methods of instruction, these students take pride in being able to think for themselves. They "demand" teachers who can relate to them. Unfortunately a semantic dilemna arises in the attempt to define teacher ability to relate to students. Students do not always agree on its meaning. However ambiguous the term to relate may be to these students, there exists a genuine urgency on their part to convey a valid complaint about some of their teachers.

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Apparently certain behaviors of classroom teachers affect the student more significantly than others. There is general agreement (Ryans, 1963; Eisner, 1964; Gage, 1965) that adequate concepts for describing teacher behavior, classroom situations, and pupil response have yet to be developed. This study attempts to determine the meaning students give to teacher ability to relate to students ; and to see if a significant difference exists among scores teachers receive from students of differing ethnic background. A study by Heath (1970) served as a pilot project.

Hypothesis One

Mean scores that a group of teacher interns receive on ability to relate to students have a strong positive linear relationship with certain classroom interactions such as "praise and reward," "teacher acceptance of students' ideas," and "teacher empathy."

Hypothesis Two

Mean scores that a group of teacher interns receive on ability to relate to students will differ significantly among three ethnic groups of student raters.

Hypothesis Three

Mean scores that a group of teacher interns receive on ability to relate to students will differ significantly between the sexes of student rater groups.

Method

A series of videotapes (magnetic audio and visual representations of microteaching lessons) of 50 teacher interns were shown to a group of high school students of both sexes and three different ethnic

backgrounds (black, Oriental, and white). These students used a special rating scale to determine the criterion measure of teacher ability to relate to students for each teacher intern. Subsequently the same videotapes were converted to categorical tabulations of classroom behaviors by three adult raters who had been trained in the Flanders interaction analysis technique (Flanders, 1965). It is from this list of categories and subcategories of classroom behaviors that potential correlates of the criterion measure were sought.

Each of the 50 selected videotapes was similar in format (microteaching lesson), topic ("Black Power"), and time (approximately six minutes). Fifty different teacher interns were represented. There were 17 males and 33 females. By ethnic group, 47 interns were white, one was Oriental, and two were black. The 50 videotapes were randomly distributed for viewing. There were five viewing sessions, each approximately two hours in length, including the time required for student raters to complete rating forms for each teacher intern.

Essentially, the use of videotaped microteaching lessons in the project was to provide stimuli to three different sets of raters. These tapes were first viewed by roughly a hundred high school students who rated each teacher intern on ability to relate to students. Later, these tapes were shown in the same order to three adult raters who analyzed the videotapes in clinical fashion, using an interaction analysis technique to be described more fully later. At the same time, five black high school raters rated the teacher interns on attitude toward the subject matter, and rated the videotapes on quality of sound and picture.

(Insert Rating Scale about here)

Reliability of the instrument for measuring teacher ability to relate to students was determined by treating the data of 62 students item by item as a two-way analysis of variance (Winer, 1962; pp. 124-128). Table 1 displays the reliability of each item.

(Insert Table 1 about here)

The reliability (r) of student raters on respective items of the teacher relatability scale confirm that the student raters took their task seriously. Consistency of rater judgment from item to item is relatively high.

Since no items were particularly weak, a composite score of all nine items for teacher relatability was also used as a criterion measure. Reliability ($\mathcal{C}$) of the composite scores of 50 teachers by 16 black students was 0.94; for 22 Oriental students, $\mathcal{C}$ = 0.95; for 24 white students, $\mathcal{C}$ = 0.93; and for all 62 students, the reliability coefficient α was 0.94 (Cronbach, 1967; pp. 154-55).

At the end of the week of data gathering, 62 students had rated all the teachers, and a total of 110 student raters had attended at least three of the five rating sessions. That is, each rater had rated at least 30 of the 50 teacher interns but not necessarily the same 30. Each student rater provided ten criterion scores for each of the teacher interns that he viewed. In addition to the nine item scores, a total score on teacher relatability was used. Thus each of the twelve groups of students provided ten criterion measures of teacher relatability, making 120 variables for each teacher intern.

The Flanders system describes only verbal interaction between teacher and pupils. All teacher-pupil interaction is divided into ten categories, seven of teacher talk, two of student talk, and one of silence or confusion. During the training of the three adult raters who analyzed the videotapes for the present research, it became apparent that it would be helpful to expand categories two (praise), five (lecture), and ten (silence or confusion). The modifications appear in Table 2, along with descriptions of observed behavior. The numbering system was left relatively intact so that the data could easily be contracted to the original basic categories of Flanders. As with any system for observing and coding the verbal interchange between a teacher and his pupils, the assumption is made that teaching behavior and pupil responses are primarily expressed through the spoken word as a series of verbal events that occur one after another. These events are identified, coded so as to preserve sequence, and tabulated systematically in order to represent a sample of the spontaneous teacher influence.

(Insert Table 2 about here)

Two certificated teachers and a professional parliamentarian, all female, were trained to place an observed interaction into one of 14 categories. Extremely conscientious, they quickly learned the categories. Scott's (1955) method was used to check rater reliability.

It took approximately 12 hours to rate the 50 videotapes once the raters had achieved satisfactory levels of reliability. The tapes were presented in the same order as the student raters had previously viewed them. Each presentation at the interaction analysis rating sessions matched as closely as possible the electronic and time

constraints that had existed earlier for the student raters.

It had been hypothesized earlier that the student ratings on teacher relatability might be due to a perceived teacher attitude toward the subject matter. This was tested by having five black male high school raters rate the videotapes on teacher attitude toward the subject matter. In addition, they rated quality of sound and picture. Reliability of the five student raters with respect to teacher attitude toward subject matter was determined to be 0.815; with respect to picture quality, 0.828; and with respect to sound quality, 0.796.

Interaction analysis of the 50 teacher intern performances resulted in computer printouts that displayed for each intern the total number of tallies and percent of total tallies in each cell of a 14 X 14 matrix, as well as showing total tallies and percent of total tallies for each row and column.

Additionally, the computer program produced 29 individual tally counts and percent of total tallies of areas within the matrices of teacher relatability. Other ratios of interest were determined by desk calculator. Eventually 51 different potential correlates were investigated.

After each session, the three tallied sheets for each teacher intern performance were summed by categories, and Scott's reliability coefficient was determined for each set of two raters. The basic interaction analysis data from the two raters with the highest reliability coefficients were put together. The rationale for essentially averaging the two sets of data after having discarded the "weakest" rater is that a more accurate account of classroom interaction is achieved in this way.

If interaction analysis of a videotape segment resulted in a Scott coefficient less than 0.80, the videotape was analyzed again. If an inordinate proportion of total time is limited to one activity (e.g., lecturing for entire class period), Scott's reliability coefficient will be low, even though raters are in practical agreement on category sums.

Table 3 shows Scott's reliability coefficient (π) between the two sets of data used for each teacher intern. The coefficients range from 0.74 to 0.95.

(Show Table 3 about here)

In general, the reliability of the adult raters with respect to the 14 categories of interaction is high, but for purposes of this research these reliabilities have limited relevance. It is more important to assess the consistency of the raters among the potential correlates that are derived from the sequential tabulations of interaction. Coefficients of observer agreement for these potential correlates were determined by correlating the data of each rater.

(Insert Table 4 about here)

The investigator first identified a set of criteria for teacher relatability. In this experiment, a teacher relatability rating scale served as the criterion measure. There are nine item scores and a total score, making ten criterion measures in all. The investigator then submitted this instrument to a group of high school students who rated the videotaped performances of 50 Stanford teacher interns.

Subsequently, these videotapes were analyzed for potential correlates, and 51 were selected. Three adult trained raters used Flanders' interaction analysis technique to convert observed class-

room behavior to sequential categorical tallies. Computer analysis of the resulting matrices determines 48 potential correlates from the interaction analysis data. Three more potential correlates were obtained from five black high school students who rated the videotapes with respect to teacher attitude toward subject matter, quality of sound, and quality of picture.

Finally, these two sets of data were used to determine actual correlations between the 10 criterion measures of teacher relatability and the 51 potential correlates for 12 groups of student raters.

Results

For 50 observations, if the observed r is larger than .279 or less than -.279, we should reject the hypotheses that $\rho = 0$ at the 5% level of significance (Dixon and Massey, 1957; p. 200). Among the 3,000 correlations of interest in this study, there are 540 r's that exceed .279 or are less than -.279. This far exceeds the number that might have occurred by chance alone.

Most of the potential correlates were found to correlate nonsignificantly with teacher relatability scores. This was to be expected, inasmuch as Flanders' interaction analysis is an observation record of the totality of classroom interactions. Some behaviors are bound to be inconsequential Forty-eight of the 51 potential correlates came from the interaction analysis of the videotapes.

Fifteen potential correlates had at least one significant correlation with a teacher relatability score. In all, these 15 variables account for 371 correlations with "teacher relatability" scores that exceed .30 or are less than -.30. This represents

approximately 12.5% of the total number of intercorrelations obtained in the study.

To interpret the results in psychological as well as statistical terms, a more complete description of these 15 variables is needed.

Variable	Description of Variables of Interest
2	Constructive integration: observed teacher empathy toward student, including verbal reward.
6	Direct teacher influence, less content: teacher gives directions, citicizes students, justifies authority.
9	Student talk, followed by teacher direction: teacher gives students direction in response to student talk.
10	Student talk, followed by teacher lecture: teacher lectures in response to student talk.
20	Extended praise: teacher praises student at length; i.e., the praise requires more than three seconds to transmit.
22	Teacher asks questions, extended: teacher asks questions for periods of time exceeding three seconds in length.
24	Teacher gives directions, extended: teacher gives directions for periods of time exceeding three seconds in length.
26	Student talk--response, extended: students talk for periods of time exceeding three seconds in length.
28	Logical silence, extended: the classroom is quiet for logical reasons (e.g., thoughtful contemplation) for periods of time exceeding three seconds in length.
30	Steady-state cells: the sum of the diagonal cells in the interaction analysis matrix; each cell represents a basic category of interaction that requires more thar three seconds of time to complete.
35	Teacher attitude toward subject matter: the subject matter in all the videotapes was "Black Power." Five black student raters judged the videotapes independently of the other groups of raters, using a separate rating scale. This was one of three potential correlates they determined.

Variable	Description of Variables of Interest
37	Quality of sound: same source as #35. The black students judged the quality of sound of the videotapes.
40	Teacher extends praise: teacher praises student beyond simple acknowledgement or encouragement.
46	Teacher gives directions: directions, commands, or orders to which a student is expected to comply.
49	Student talk--initiation: student initates verbal interaction in the classroom.

Reference to a "variable of interest" in the text of this section pertains to one of the 15 variables in the preceding list.

Tables 5 and 6 display correlations of interest which for a particular group of student raters seem sufficiently high to warrant discussion. Less significant correlation coefficients are included for adjacent groups to show consistency of direction. Each of the correlations is based on observations of 50 mean scores on total ability to relate (TAR) with the 50 corresponding scores on one variable of interest.

The numerals in the column headings refer to specific groups of student raters.

(Insert Tables 5 and 6 about here)

Generally speaking, it appears that student raters of teacher interns associate ability to relate significantly with four variables (Table 5, Group 16).

Variable	r	Description
10	.3831	Student talk, followed by teacher lecture
28	-.3357	Extended silence
37	.3511	Quality of sound
49	.3320	Student talk--initiation

On the basis of these correlations, one may conclude that in general there is a positive relationship between a teacher's ability to relate to students and his tendency to base his lectures on preceding student comments. It is worthwhile to note that lecturing by itself did not correlate significantly with any TAR scores.

The negative correlation of "extended silence" indicates that students in general tend to downgrade teacher interns on ability to relate when silence in the classroom is prolonged, even though the silence may be logically appropriate.

Student raters in general also seem to be affected by the quality of sound associated with a teacher's performance on videotape. The better the sound the more favorable is a teacher's rating on ability to relate.

"Student talk--initiation" has a positive linear relationship with TAR scores. More favorable ratings on ability to relate to students appear to go to the teachers who allow more freedom of expression to students.

By coincidence, the male student rater signfiicantly correlates total ability to relate (TAR) scores with the same four variables. The correlations are .3479, -.3072, .3463, and .3507 for variables 10, 28, 37, and 49, respectively.

In addition to the variables previously discussed for students in general, female students tend to find significant relationships between TAR scores and "teacher gives directions, extended" (-.3046). If a teacher tends to prolong instructions, he will be graded less

favorably by female students on ability to relate. The female also rates higher the teacher who praises his students in terms more extensive than simple acknowledgement (.2977).

In two variables, black students tend to rate teacher interns appreciably different from students in general. As a group, black students only reach a significant level with three variables, and two of these (teacher gives directions, extended and teacher extends praise) are not sifnificant for students in general. It appears that black students rate less favorably those teacher interns who tend to give extensive directions (-.3099), and who allow periods of silence to be prolonged (-.3224). As a group, black students tend to rate teacher interns who expand their praise of students more favorably on ability to relate (.3144).

Oriental students reflect the same tendencies as students in general. The same variables correlate significantly with TAR scores. The correlations are .4025, -.3432, .4101, and .3386, for variables 10, 28, 37, and 49, respectively. Each correlation is larger in the corresponding direction than for students in general, but no confidence can be placed in suggesting that a true difference exists.

Ratings that white students gave teachers correlate significantly with three of the four variables previously discussed for students in general. "Extended silence" seems not to be a significant factor to white students. Correlations for variables 10, 37, and 49 are .4092, .3372, and .3175, respectively.

In general, this investigation determined that students tend to rate higher on ability to relate to students those teachers who:

a) lecture in response to student talk (variable 10);

b) are not artificially disadvantaged by technical difficulties with sound (variable 37);

c) allow students freedom to initiate discussion (variable 49); and

d) use praise extensively in rewarding students (variable 40).

On the other hand, students tend to rate less favorably on ability to relate those teachers who:

a) permit silence in the classroom to continue for prolonged periods of time (variable 28);

b) give directions for extended periods of time (variable 24);

c) prolong an activity (variable 30); and

d) ask questions for prolonged periods of time (variable 22).

Differences among rater groups were analyzed for race and sex by using analysis of variance. Original data (total score on teacher relatability scale) of 66 student raters on 30 teacher interns was the source of the values below. It was hypothesized (Hypotheses Two and Three) that there are significant differences by race and sex among student raters.

There were 11 raters for each of 6 cells (3 races by 2 sexes). The only significant F-ratio was for teacher differences. At 23.0563, this F-ratio is significant at the .0001 level, and in simple terms indicates the diversity of teacher intern performances which served as stimuli for the raters.

However, other F-ratios were less than adequate to sustain the hypotheses. For main effect of race, the F-ratio was 1.4778; and for sex, the F-ratio was only .0029.

This substantiates other evidence that there is no significant difference among mean teacher relatability scores by main effects of race and sex of student raters. There is not sufficient evidence on the basis of the present study to accept Hypotheses Two and Three.

The basic hypothesis (Hypothesis One) of this research project was that teacher ability to relate to students has a strong linear relationship with certain classroom interactions. On the basis of the evidence obtained, there is reason to believe that certain classroom interactions do affect a student rater's assessment of a teacher's ability to relate to students. None of the correlations are strong, however, and the investigator has chosen only to identify 15 variables (see pages 9 and 10), which for some student raters were modestly but significantly correlated with item or total score on teacher ability to relate to students.

Summary and Conclusions

The main objective of this study was to identify teacher behaviors that correlate with ratings students give teachers on their ability to relate to students. It appears that a teacher is rated more favorably on ability to relate to students when his role is seen by students to facilitate student participation in class activity.

To the extent that one might draw conclusions from low but significant correlations, the researcher finds evidence among the results of this study to substantiate the conjecture that teacher

relatability is enhanced more by what teachers allow students to do than by what the teacher is doing.

For example, students in general rate more favorably on ability to relate those teachers who permit students to initiate discussion or who base their lectures on student talk. At the same time, students seem to grade less highly on ability to relate those teachers who prolong question periods or who permit silence to extend for periods over three seconds.

Flanders (1970) reports similar results in six out of seven projects he conducted between 1955 and 1967. When pupils have opportunities to express their ideas, and when these ideas are incorporated into the learning activities, Flanders notes that pupils seem to learn more and develop more positive attitudes toward the teacher and the learning activities.

Of the 371 significant correlations between teacher ability to relate scores and the potential correlates obtained from interaction analysis, over one-third (129) pertain to "student initiates discussion." Only one group (black male) failed to find it significant at least once.

As a check on external influences on student ratings of teacher interns, the quality of the videotapes with respect to sound and picture was correlated with teacher ability to relate scores. The quality of sound turned out to be the second most frequent significant correlate with teacher ability to relate. It is apparent that to some extent student raters were influenced by quality of sound during the rating sessions. Since the study did not require a "true" picture of

any particular teacher intern, the effect of a varying quality of sound simply confirms other evidence that student raters were highly reliable in reporting what they saw. Nonsignificant correlations between "picture quality" and ability to relate scores suggest that the quality of the picture did not influence the ratings in any significant way.

Sixty-three instances of significant negative correlations between "extended silence" and ability to relate scores are spread among the various rater groups, white males excepted. Teachers who permit silence to be prolonged (more than three seconds) score less favorably on ability to relate, but the silence may be a symptom rather than a cause. The technique employed in this study for assessing classroom interactions does not reveal the interactions accompanying "extended silence." Further research on "silence in the classroom" would be appropriate in light of the results of this study.

Black female group scores on ability to relate correlated significantly (in a negative direction) with "direct teacher influence, less content." This was the only group to rate less favorably those teachers who devote considerable time in giving directions, justifying authority, or criticizing students. Further research is needed to see if black females are affected adversely by teachers whose classroom style might be characterized as "direct."

Secondary objectives of the study were to see if main effects of ethnic group or sex of student raters influence the mean scores they give to teachers on ability to relate. The low F-ratios obtained (see page 14) indicate to the researcher that high school students categorize teachers in similar fashion, regardless of ethnic group or sex of student.

The teacher who was rated the most favorably by students in general is a black male. The next two most favorably rated teacher interns were white males who wore thick moustaches. More research using a phenomenological approach is recommended to see if the ability of a teacher to relate to students is enhanced by personal characteristics of the teacher that are unrelated to teaching behavior.

This study has identified several classroom interactions that correlate significantly with teacher ability to relate to students. They deserve closer scrutiny. A correlational atudy needs to be supplemented with other research techniques (such as pretest, posttest control group design) to determine suspected causality. "Extended silence," "student-initiated discussion," "extended praise," "direct teacher influence, less content," "extended direction-giving," and "extended question periods" are candidates for such investigation.

In a replicated study the writer would recommend expanding sub-categories of the Flanders interaction analysis matrices to include potential correlates "adjacent" to those found significant in this study. It would be helpful to know if classroom interactions that immediately precede or follow "silence" in the sequence of events are also correlated with ability to relate.

A more comprehensive account of this research is found in the doctoral dissertation of the investigator (Lawson, 1970). A technical report of the project will also be available soon through the Stanford Center for Research and Development in Teaching, Stanford University (Lawson, in press).

There are definite limitations to this study beyond the modest correlations that are reported herein. Interaction analysis is limited by what it can represent. The coding of classroom interaction is a relatively gross description, ignoring much of what takes place. Non-verbal behavior is particularly difficult to code, and the nuances of speech patterns, voice inflections, and even style of hair are lost in the process of coding.

On the basis of results of the present study and the pilot study, it appears quite reasonable to use a 2 X 2 factorial design in improving on the present research. Data on teacher behaviors and characteristics would be obtained by phenomenological and behavioristic approaches.

This is highly recommended, since the present study has only begun to shed light on the meaning that students attach to <u>teacher ability to relate to students</u>.

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The Female Version of the Rating Scale.

Teacher Number _____ Your Name_____TRSF

For Student Evaluator: After you have seen the teacher perform on videotape, for each of the statements below, place an X between the two reference phrases at a point which you feel is the teacher's position on this particular statement. MARK ALL STATEMENTS.

1. The students can count on this teacher for help when they need it.

This teacher won't help her students '___'___'___'___'___'___'___' This teacher will help her students

2. If I were a teacher, I would do a lot of things the way this teacher does them.

I'd do a lot of things her way '___'___'___'___'___'___'___' I would not do anything her way

3. This teacher is interested in her students.

She's not interested in her students '___'___'___'___'___'___'___' She's interested in her students

4. How well do you think this young lady would be accepted as a teacher in your school?

Well accepted as a teacher '___'___'___'___'___'___'___' Not accepted at all

5. This teacher's approach toward students is one that I like to see.

I don't like her approach '___'___'___'___'___'___'___' I like her approach

6. Do you think this teacher would be a good teacher for you?

Yes, she'd be good for me '___'___'___'___'___'___'___' No, she'd be no good for me

7. This teacher knows how to communicate well with students.

Poor ability to communicate '___'___'___'___'___'___'___' She communicates well with her students

8. If you happened to be in this person's class, would you feel comfortable about asking her for help if you really needed it?

No, I would not feel comfortable about asking her for help '___'___'___'___'___'___'___' Yes, I would feel comfortable about asking her for help

9. I think this teacher would be quite willing to have a student like me in her class.

Yes, she would be quite willing to have me in class '___'___'___'___'___'___'___' No, she would not be willing to have me in class

Table 1

Reliability of student raters on each item of teacher relatability scale

Item	Mean	SS_{br} /df= 61	SS_{rxt} /df= 2989	MS_{wt} (to nearest .01)	MS_{bt}	r (to nearest .01)
1	5.40032	1300.215/61	3834.461/ 2989	1.68	15.59884	0.89
2	4.62742	1401.519/61	5646.621/df	2.31	25.66031	0.91
3	5.37806	1413.020/61	3944.205/df	1.76	14.6979	0.88
4	4.97419	1509.276/61	4430.266/df	1.94	27.87404	0.93
5	4.78452	1449.009/61	6583.773/df	2.64	30.47952	0.91
6	3.65032	1595.412/61	6878.258/df	2.78	31.57544	0.91
7	4.98484	1393.697/61	5968.461/df	2.42	29.32462	0.92
8	4.98710	2188.202/61	5648.187/df	2.57	22.39560	0.89
9	5.08613	2430.340/61	4654.125/df	2.32	14.66396	0.84

Table 2

MODIFIED CATEGORIES OF INTERACTION ANALYSIS

TEACHER TALK	INDIRECT INFLUENCE	1. ACCEPTS FEELING: accepts and clarifies the feeling tone of the students in a non-threatening manner. Feelings may be positive or negative. Predicting or recalling feelings are included. 2. PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension, not at the expense of another individual; nodding head, or saying "um hm?" or "go on" are included. 21. EXTENDED PRAISE: the teacher uses public or private criteria in praising the student's contribution. "Your graph is particularly helpful because it clearly shows what we have been discussing." "A report like John's makes me very happy." 3. ACCEPTS OR USES IDEAS OF STUDENTS: clarifying, building, or developing ideas suggested by a student. As teacher brings more of his own ideas into play, shift to category five. 4. ASKS QUESTIONS: asking a question about content or procedure with the intent that a student answer.
	DIRECT INFLUENCE	5. LECTURING: giving facts or opinions about content or procedures; expressing his own ideas. 51. AUDIO-VISUAL PROPS: when attention is focused on a painting, illustration, graph, musical selection, or taped speech, and no verbal interaction is taking place. 52. RHETORICAL QUESTIONS: when a teacher asks a question in such a way as not to expect a response from his students. 6. GIVING DIRECTIONS: directions, commands, or orders to which a student is expected to comply. 7. CRITICIZING OR JUSTIFYING AUTHORITY: statements intended to change student behavior from non-acceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.
STUDENT TALK		8. STUDENT TALK--RESPONSE: talk by students in response to teacher. Teacher initiates the contact or solicits student statement. 9. STUDENT TALK--INITIATION: talk by students which they initiate. If "calling on" student is only to indicate who may talk next, observer must decide whether student wanted to talk. If he did, use this category.
		10. LOGICAL SILENCE: pauses, short periods of silence which are induced by class activity. "Think about that for a minute." "What do you see in that picture that might explain John's actions?" 11. CONFUSION: periods of non-constructive activity; ambiguous instructions, perplexed reaction, or marked indifference.

Table 3

Reliability of Selected Adult Raters

Teach No.	Raters	Scott's π	Teach No.	Raters	Scott's π	Teach No.	Raters	Scott's π
1	1,2	.82	18	2,3	.90	35	1,3	.82
2	2,3	.75	19	2,3	.87	36	1,2	.94
3	1,2	.82	20	1,2	.88	37	2,3	.86
4	1,2	.86	21	1,3	.93	38	1,2	.82
5.	2,3	.85	22	2,3	.86	39	1,3	.93
6	1,3	.89	23	2,3	.86	40	1,2	.80
7	2,3	.82	24	2,3	.86	41	2,3	.92
8	1,2	.75	25	2,3	.80	42	2,3	.82
9	1,3	.87	26	1,3	.87	43	1,3	.91
10	1,2	.87	27	1,3	.88	44	1,3	.83
11	1,2	.80	28	1,3	.78	45	2,3	.88
12	1,3	.85	29	1,3	.87	46	1,3	.79
13	1,3	.80	30	1,3	.84	47	2,3	.74
14	1,2	.82	31	1,3	.83	48	1,3	.76
15	1,3	.80	32	1,3	.87	49	2,3	.82
16	2,3	.87	33	1,3	.84	50	2,3	.82
17	1,2	.85	34	1,3	.90			

Table 4

Coefficient of Observer Agreement on Potential Correlates

Code No.	r	Code No.	r	Code No.	r	Code No.	r
1	.968	13	.919	25	.904	40	.936
2	.866	14	.855	26.	.969	41	.928
3	.947	15	.924	27	.964	42	.941
4	.920	16	.976	28	.987	43	.964
5	.916	17	.881	29	.730	44	.994
6	.926	18	.984	30	.896	45	.813
7	.827	19	.962	31	.942	46	.925
8	.765	20	.562	32	.938	47.	.984
9	.700	21	.717	33	.356	48	.942
10	.739	22	.856	34	.647	49	.961
11	.914	23	.964	38	.987	50	.978
12	.957	24	.896	39	.863	51	.887

Table 5

Correlation of variable of interest with

mean of total "ability to relate" scores

Variable	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
6	-.1956	-.3295	-.1490	-.2492	-.1878	-.1800
10	.2878	.2617	.2985	.4500	.3525	.4221
24	-.2574	-.3265	-.2220	-.2804	-.2553	-.2228
28	-.3088	-.3076	-.3290	-.3333	-.1945	-.3476
30	-.1774	-.1829	-.2542	-.3060	-.2837	-.1807
37	.2763	.1870	.4028	.4004	.2384	.4042
40	.2429	.3459	.2791	.2888	.0853	.1945
46	-.2049	-.3056	-.1747	-.2360	-.1958	-.1702
49	.2550	.2749	.3273	.3243	.3604	.2359

Table 6

Correlation of variable of interest with

mean of total "ability to relate" scores

Variable	Grp 12	Grp 34	Grp 56	Grp 15	Grp 26	Grp 16
6	-.2856	-.2162	-.1977	-.1992	-.2819	-.2480
10	.2871	.4025	.4092	.3479	.4008	.3831
24	-.3099	-.2659	-.2569	-.2726	-.3046	-.2934
28	-.3224	-.3432	-.2837	-.3072	-.3513	-.3357
30	-.1895	-.2964	-.2472	-.2639	-.2480	-.2583
37	.2387	.4191	.3372	.3463	.3438	.3511
40	.3144	.2928	.1474	.2190	.2977	.2649
46	-.2751	-.2189	-.1965	-.2149	-.2636	-.2447
49	.2782	.3386	.3175	.3507	.3085	.3320